## IN THE UNITED STATES DISTRICT COURT FOR THE EASTERN DISTRICT OF TEXAS MARSHALL DIVISION

XR COMMUNICATIONS, LLC, dba VIVATO TECHNOLOGIES

Plaintiff,

Case No. 2:23-cv-00202-JRG-RSP

(Lead Case)

v.

AT&T SERVICES INC., AT&T MOBILITY

LLC, and AT&T CORP.

Defendant,

JURY TRIAL DEMANDED

NOKIA OF AMERICA CORPORATION, ERICSSON INC.

Intervenors.

XR COMMUNICATIONS, LLC, dba VIVATO TECHNOLOGIES,

Plaintiff,

v.

Case No. 2:23-cv-00203-JRG-RSP (Member Case)

VERIZON COMMUNICATIONS, INC. and CELLCO PARTNERSHIP D/B/A VERIZON WIRELESS.

Defendants,

NOKIA OF AMERICA CORPORATION, ERICSSON INC.

Intervenors.

JURY TRIAL DEMANDED

XR COMMUNICATIONS, LLC, dba VIVATO TECHNOLOGIES,

Plaintiff,

v.

Case No. 2:23-cv-00204-JRG-RSP (Member Case)

T-MOBILE USA, INC.

Defendant,

NOKIA OF AMERICA CORPORATION, ERICSSON INC.

Intervenors.

JURY TRIAL DEMANDED

PLAINTIFF XR COMMUNICATIONS, LLC'S REPLY CLAIM CONSTRUCTION BRIEF

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#### I. U.S. PATENT NO. 7,177,369 ("'369 PATENT")

# A. "pre-equalization parameter" terms ('369 patent, claims 1, 13, 21, 32, 33, 41)

All parties agree that the term "pre-equalization parameter" carries its plain and ordinary meaning. To reduce disputes, Plaintiff is amenable to the plain meaning adopted by the Board in its Decision Denying Institution in IPR2024-00314 ('369 patent). The Board found that the plain meaning of "pre-equalization parameter" encompasses at least "a parameter used for pre-equalization, that is, to account for properties of a propagation path between a transmitter and a receiving device." Ex. 12 ('369 IPR ID) at 14-15; see id. 25 ("first and foremost, independent claim 1 requires the application of a pre-equalization parameter" and the Petition fails to show how "Wong's total power minimization process performs pre-equalization, so as to modify the transmission signal to account for the properties of the propagation paths between the base station and the receiver.") (emphasis original). Plaintiff believes the Board's understanding is consistent with Plaintiff's plain meaning and thus proposes it in the alternative.

Defendants' proposal is simply: "plain and ordinary meaning" / no further construction necessary. Thus, Defendants fail to present any dispute over claim scope for the Court to resolve, and their claim construction arguments are largely irrelevant. But to the extent Defendants imply that "pre-equalization parameter" means the same thing as "parameter," that is legal error and should be rejected. For example, Defendants argue that "pre-equalization" is fully captured by the language in [1c] relating to "setting different transmission power levels" of OFDM tones (i.e. the language after the "where said modifying includes..." clause) and nothing more. Dkt. 86 at 1.

This fails. There is no support in the intrinsic record for treating the term as superfluous of other claim language. Defendants' argument reads "pre-equalization" out of the phrase "pre-equalization parameter." The Board correctly found that "pre-equalization parameter" requires "a parameter used for pre-equalization"—not just any parameter. Ex. 12 at 14-15. To give meaning

to the phrase, the Board clarified that it at least requires a "parameter used for pre-equalization, that is, to account for properties of a propagation path between a transmitter and a receiving device." Ex. 12 at 14-15. This is correct and should be adopted here.

Defendants also have no answer to the IEEE Dictionary definition for "pre-equalization," which further shows that the Board's interpretation of pre-equalization is consistent with its plain meaning. Ex. 10 (IEEE Dict., 7th ed., Dec. 2000) (defining pre-equalization (or pre-emphasis) as "[a] process in a system designed to emphasize the magnitude of some frequency components with respect to the magnitude of others, *to reduce adverse effects*, such as noise, in subsequent parts of the system.") (emphasis added). Although the Board declined to adopt the IEEE definition as the construction, the definition confirms that "pre-equalization" has a specific, technical meaning to POSITAs and should not be read out of the claims.

#### B. "substantially reciprocal to" ('369 patent, claim 12)

Defendants don't dispute that "reciprocity" is a well-known property used to describe a wireless channel such as in Time Division Duplex (TDD) systems. Ex. 1 ('369 Patent), 7:21-34. Defendants nonetheless argue that "substantially reciprocal" is a term of degree and that "the district court must determine whether the patent's specification provides some standard for measuring that degree." Dkt. 86 at 4, citing *Datamize, LLC v. Plumtree Software, Inc.*, 417 F.3d 1342, 1351 (Fed. Cir. 2005). But Defendants have no meaningful rebuttal to the standard set forth in the '369 patent specification, which defines "substantially reciprocal" as reciprocal for "a given moment in time between a base station device and a consumer premise equipment device." Ex. 1 ('369 Patent), 2:13-16. The '369 patent also confirms that reciprocity is an *assumption* about the channel that POSITAs make about Time Division Duplex (TDD) systems *for certain durations of* 

time. Ex. 1 ('369 Patent), 10:61-11:5 ("[i]f TDD is used, then the channel can be assumed to be reciprocal for durations (coherence time) of approximately 10 ms.").

In response, Defendants argue that the term is indefinite because these excerpts in the specification don't say precisely how long reciprocity must exist to qualify as "substantially reciprocal." Dkt. 86 at 5. Defendants are wrong on the facts and on the law. The '369 patent specification *does say* how long reciprocity must exist by explaining that reciprocity must exist for a "moment in time" for the channel to qualify as "substantially reciprocal." Ex. 1 ('369 Patent), 2:13-16. Even if this term is broad (in isolation), that is not a basis for indefiniteness. *See BASF Corp. v. Johnson Matthey Inc.*, 875 F.3d 1360, 1367 (Fed. Cir. 2017) (legal error to infer indefiniteness because "breadth is not indefiniteness").

Further, even if Defendants could to some alleged ambiguity at the margins, that would not show indefiniteness either. As the Federal Circuit has explained, "[b]ecause language is limited, we have rejected the proposition that claims involving terms of degree are inherently indefinite." *Sonix Tech. Co. v. Publications Int'l, Ltd.*, 844 F.3d 1370, 1377 (Fed. Cir. 2017). "Thus, 'a patentee need not define his invention with mathematical precision in order to comply with the definiteness requirement." *Id.* "Claim language employing terms of degree has long been found definite where it provided enough certainty to one of skill in the art when read in the context of the invention." *Interval Licensing LLC v. AOL, Inc.*, 766 F.3d 1364, 1370 (Fed. Cir. 2014).

# C. "a plurality of first device receive antennas" ('369 patent, claim 19)

Defendants have withdrawn their proposed construction, so the Court does not need to construe this term. *See* Dkt. 86 at 5 ("Based on XR's position that the first device is the transmitting device (Op. Br. at 9), Defendants withdraw their proposed construction and agree that no further construction is necessary.").

#### II. U.S. PATENT NO. 8,289,939 ("'939 PATENT")

#### A. "wireless input/output (I/O) unit" ('939 patent, claims 15, 30)

Defendants fail to show that the Central District of California (CDCA) misapplied the law in construing this term as not means-plus-function. Judge Carter's Order (Ex. 5, D.I. 312) adopting Special Master Keyzer's R&R (Ex. 6) provides detailed reasons why 35 U.S.C. § 112 ¶ 6 doesn't apply. See Ex. 5, 6-8; Ex. 6, 40-43 (citing Ex. 13). The CDCA correctly applied the law in holding that the analysis of "wireless device means" in *Skyy, Inc. v. MindGeek, s.a.r.l.*, 859 F.3d 1014 (Fed. Cir. 2014) applies to this term "with even greater force in the present case, particularly in light of the above-cited disclosure in the specification [at 4:17-23]." Ex. 6 at 43. The CDCA also credited expert testimony that "wireless I/O unit" is a known structure. *Id.* (citing Ex. 13).

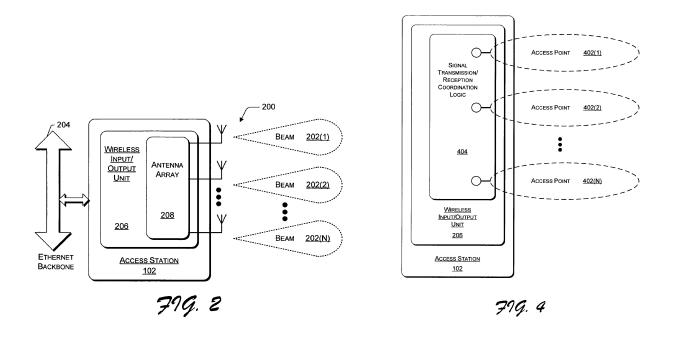
In disputing the CDCA's construction, Defendants feign ignorance about clear disclosures in the '939 patent teaching what the "wireless input/output (I/O) unit" is and how it performs the function "establish a plurality of access points." Those disclosures show that in preferred embodiments of the '939 patent, the wireless I/O unit is the structure in a wireless access station with the beamformer and antenna array that forms a plurality of beams and that configures each beam as an access point that a device connects to for accessing the network. '939 patent, 4:17-52, 5:30-48, 6:54-7:6, 7:58-8:16. Defendants fail to meaningfully engage with these disclosures. Dkt. 86 at 7-14. For example, Defendants don't dispute that Figure 4 depicts the wireless I/O unit establishing a plurality of access points, but they argue they do not know what this means. *Id.* But the specification clearly teaches what this means. It says in the context of Figure 4 that "each access point of the multiple access points 402 may correspond to, for example, an individual access point in accordance with an IEEE 802.11-based standard." '939 patent, 5:38-47.

The specification also clarifies that the wireless I/O unit configures each beam as an access

point that a device connects to for accessing the network. '939 patent, 5:38-47. As the specification explains, the "wireless input/output (I/O) unit" is the structure in "access station 102" that comprises the "antenna array 208" and a "beamformer," where the "beamformer along with antenna array 208" produces "multiple communication beams 202." '939 patent, 4:17-52.

The "wireless input/output (I/O) unit" also preferably includes a separate radio for each beam, which corresponds to a "MAC 604," "BB unit 608," and "RF part 610." '939 patent, 6:54-7:6. Each radio can be implemented on an individual electronic card. '939 patent, 7:58-8:16. This allows each radio and each beam to form an access point that devices can connect to.'939 patent, 7:58-8:16 ("...RF part 610, along with at least part of beamformer 612 and/or antenna array 208, and each respective communication beam 202 may also correspond to the different respective access points 402."); *see* cl. 9 ("wherein each access point of the plurality of access points corresponds to a communication beam of a plurality of communication beams that emanate from the access station."); cl. 10 ("wherein each access point...is associated with a medium access controller/baseband unit pair.").

Indeed, Figure 2 shows the "wireless (I/O) unit 206" establishing a plurality of "beams 202(1), 202(2) . . . 202(N)." '939 patent, 4:44-52. And Figure 4 shows the same "wireless I/O unit 206" establishing access points "402(1), 402(2) . . . 402(N)" on each beam. '939 patent, 5:30-47 ("each respective access point 402 of the multiple access points 402 may correspond to, for example, a respective communication beam 202 of multiple communication beams 202 (as shown in FIGs. 2 and 3)."). Figures 2 and 4 are reproduced below:



Such detailed disclosures in the specification render this case analogous to this Court's decision in *Huawei Techs. Co. Ltd. V. T-Mobile US, Inc.*, 2017 WL 1376436 at \*15-17 (E.D. Tex. Apr. 15, 2017), which held that the terms "receiving unit" and "sending unit" are not 112(6) because "a POSA would understand the necessary structure of the unit terms from the specification and also that the claim language described the inputs and outputs of the components." Dkt. 86 at 10, n. 4. Defendants cannot distinguish *Huawei* and acknowledge that the term "unit" does not automatically confer means-plus-function status on the claim term at issue. Dkt. 86 at 10, n. 4. Thus, Defendants have failed to present a compelling reason to depart from the California Court's construction that this term is not means-plus-function.

## B. "signal transmission/reception coordination logic" ('939 patent, claims 15, 30)

It is well-established that claim terms referring to code, applications, processors, memory, circuitry, or chips are well understood as structural terms by persons of ordinary skill in the art. *WSOU Investments LLC v. Google LLC*, No. 2022-1063, 2023 WL 6889033, at \*4 (Fed. Cir. Oct. 19, 2023) (reversing the district court's finding that § 112 ¶ 6 applied to the terms "computer"

program code," "memory," and "processor"); *Dyfan LLC v. Target Corp.*, 28 F.4th 1360, 1367 (Fed. Cir. 2022) (reversing district court's finding that § 112 ¶6 applied to terms "code" and "application" which could be implemented using "off-the-shelf" software); *Apex Inc. v. Raritan Comput.*, *Inc.*, 325 F.3d 1364, 1373 (Fed. Cir. 2003) (holding "circuit" connotes structure and is not §112(6)) (cited with approval in *Dyfan*); *See VDPP LLC v. Vizio Inc.*, No. 2021-2040 (Fed. Cir. Mar. 2022) (nonprecedential) (reversing means-plus-function treatment for "processor").

The most recent district court to construe the claim term at issue was the Western District of Texas (WDTX). It correctly applied *Dyfan* and this line of cases to construe this term as not means-plus-function. Ex. 7 (WDTX Order). The '939 claims and specification define this term as "signal" logic that monitors access points for "received signals" and restrains them from transmitting "signals." '939 patent, cl. 15, 30; see '939 patent, 6:1-15. A POSITA thus understands that the signal logic is implemented as a signal processor chip in a wireless access station. *Id.* The specification confirms that the signal transmission/reception coordination logic 404 is "implemented at the baseband layer in a system that utilizes off-the-shelf chips in which MAC and baseband functionality are integrated into a single chip or chips." '939 Patent, 18:39-44. This falls under *Dyfan*'s holding that "code" and "application" are not means-plus-function terms where they refer to computer programs that can be implemented using "off-the-shelf" software. Surely a signal logic structure implemented in an off-the-shelf, physical baseband chip is at least as structural as the code or application from *Dyfan*. The '939 patent's baseband logic 404 is more analogous to the "circuit" structure in *Apex. Apex.*, 325 F.3d at 1373 (cited with approval in *Dyfan*).

Defendants attempt to analogize this term to the "logic" term in *Egenera*, *Inc.* v. *Cisco Sys.*, *Inc.*, 972 F.3d 1367 (Fed. Cir. 2020). But *Egenera* found no guidance in the claims or specification on the operation of the logic, its inputs and outputs, or how it could be implemented. *Id.* Here, the

'939 Patent limits the logic by defining it as a "signal" logic, which is much narrower than the "logic" in Egenera, which was not limited to signal processing. And the '939 patent couples the term "signal transmission/reception coordination logic" with "language describing its operation." Dyfan, 28 F.4th at 1367-68. The claims recite the inputs to the logic ("monitoring the plurality of access points for received signals") and the output ("restrain[ing]" another access point from transmitting signal). See '939 patent, cl. 15, 30; see id. 6:1-15. Similarly, Figure 4 depicts signal transmission/reception coordination logic 404 to "monitor the multiple access points 402(1...N) to ascertain when a signal is being received" and to "restrain" signal transmissions on the access points—just as claimed. '939 patent, 5:65-6:15, 6:16-53.

Given these disclosures, Defendants' reliance on *Canon, Inc. v. TCL Elecs. Holdings Ltd.*, 2020 WL 2098197 at \*25-26 (E.D. Tex. May 1, 2020) is misplaced. In that case, the claim recited no inputs, outputs, or structural aspects of the "communications unit." But the '939 patent claims a "*signal*" logic that monitors the access points for received *signals* and restrains *signal* transmission, which a POSITA understands is implemented in a baseband signal processor chip or equivalent. This discloses the inputs, outputs, and structural aspects found lacking in *Canon*.

Defendants also point to the CDCA which construed this term as means-plus-function and to the corresponding structures in the specification. But that decision preceded or did not analyze Federal Circuit's recent guidance in *WSOU* and *Dyfan*, under which the term is not means-plus-function. In light of that recent guidance, XR prevailed in the Western District of Texas by arguing the term is not means-plus-function. In any event, that the CDCA construed the term to cover the corresponding structures in the specification confirms that the term is not a "black box" and is not indefinite. Ex. 5 (CDCA Order) at 8-10. Those corresponding structures are clearly linked to the claimed functions, as the CDCA court held. *Id.* In any event, the term is not indefinite.

#### C. "restrain ... responsive to the ascertaining ..." ('939 patent claims 15, 30)

The CDCA rejected Defendants' "while" construction, holding that there are no statements in the claims, specification, or prosecution history that would warrant importing the "while" limitation from dependent claim 8 ("restrains at least one other access point of the plurality of access points while the first access point is receiving the first signal") into the independent claims. Defendants argue the use of "is receiving" in the independent claims in the context of the claimed "ascertaining" action requires the claimed "restraining" action to occur "while a signal is being received." Dkt. 86 at 22-23. But that is not what the claim says. The claim says to use "received signals" to ascertain that an access point "is receiving" a signal. It never says to perform the "restrain" action "while" performing any other action. As the CDCA court held, that "restraining" is "responsive to" ascertaining does not require the "restraining" action to be performed contemporaneously with the "ascertaining." Ex. 5 (Order) at 11-12, citing Ex. 6 (R&R) at 63-64.

Defendants' remaining arguments rest on their (incorrect) characterizations of preferred embodiments or what they characterize as the "patent's objective" or the "problem the '939 Patent attempts to solve." Dkt. 86 at 23. But there is no support for limiting claims to preferred embodiments. Ex. 6 at 63-64. Nor are the patent's alleged objective or problem to be solved a proper basis to import a "while" limitation into the claims. Tellingly, Defendants don't argue lexicography or disclaimer, and the CDCA court confirmed that there is none. Defendants also fail to show their construction is warranted in view of preferred embodiments in which scanning is periodic (and not constant) such that restraining would clearly occur at different times from the moment of signal reception. '939 patent, at 13:34-44, 17:18-32.

#### D. "the access point" (939 patent, claims 20- 21, 33-34)

This Court should adopt the reasoning and construction of the CDCA court for the same

term. Ex. 5 (CDCA Order) at 17 ("The term 'the access point' refers back to 'a first access point' for antecedent basis."); see Ex. 6 (R&R) at 70 ("[T]he claim is reasonably clear that 'the access point' refers back to 'a first access point.") (citing Ex. 13).

#### III. U.S. PATENT NO. 8,737,511 ("'511 PATENT")

#### A. "n multiple-input multiple-output transceivers (MIMO)" ('511 patent, cl. 1, 10)

Defendants concede nothing in the intrinsic record supports their construction. Dkt. 86. Indeed, the '511 doesn't limit the design of the claimed transceiver. Ex. 3 ('511 patent), 4:29-39, 5:33-41. Thus, Defendants' construction is unsupported and should be rejected.

#### B. "MIMO transmitter ..." / "MIMO receiver ..." ('511 patent, claims 1, 10, 20)

In the claims, the modifier "MIMO" modifies "transmitter" and "receiver"—not "signal." Defendants fail to support requiring importing the requirement for "MIMO signals," at least since "signals other than MIMO may be used as well." 511 patent at 3:32-35.

# C. "2nd Generation Partnership Project (3GPP) Long Term Evolution (LTE), 3GPP LTE-Advanced, 3GPP LTE-TDD, 3GPP LTE-FDD" ('511 patent, claims 2, 11)

The Court should follow the Western District of Texas and not construe the claim. Ex. 7 (WDTX Order) (Term #2, rejecting the language "at the time of the invention.") If not, the Court should at least clarify that claims 2 and 11 can be infringed by a 3GPP standard that existed at the time of the invention even if that standard has been updated over time. '511 Patent at 3:30-47.

#### IV. U.S. PATENT NO. 10,715,235 (THE '235 PATENT)

## A. "transceiver" ('235 patent, claims 1, 15, 18, 19)

No construction is needed for this term. The plain meaning of "transceiver" can be addressed at trial without adopting a formal construction. Defendants point to an IPR statement for a different patent ('376 patent), with different claims and issues, that was responding to a fact-specific invalidity argument. No adequate showing of disclaimer has been made.

Dated: August 21, 2024

#### Respectfully submitted,

#### /s/ Reza Mirzaie

Marc Fenster CA State Bar No. 181067 Reza Mirzaie CA State Bar No. 246953 Adam Hoffman CA State Bar No. 218740 Neil A. Rubin CA State Bar No. 250761 James Pickens CA State Bar No. 307474 Christian W. Conkle CA State Bar No. 306374 Philip Wang CA State Bar No. 262239 Minna Jay CA State Bar No. 305941

Paul Kroeger

CA State Bar No. 229074

#### **RUSS AUGUST & KABAT**

12424 Wilshire Blvd. 12th Floor Los Angeles, CA 90025 Telephone: 310-826-7474 rak vivato@raklaw.com

Attorneys for Plaintiff, XR Communications, LLC, dba Vivato Technologies

# **CERTIFICATE OF SERVICE**

I hereby certify that the counsel of record who are deemed to have consented to electronic service are being served on August 21, 2024, with a copy of this document via the Court's ECF system.

/s/ Reza Mirzaie
Reza Mirzaie